AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (Currently Amended) A predistortion control device comprising: ~~(1),~~ ~~including~~:

a first predistortion control input selectively connected ~~(10) connectable~~ to a power amplifier output ~~(21)~~;

a second predistortion control input selectively connected ~~(11) connectable~~ to a signal contact ~~(30,31)~~ of a predistortion device ~~(3)~~; and

a predistortion control output selectively connected ~~(12) connectable~~ to a control contact of the predistortion device, the predistortion control device ~~(1)~~ further including:

a cross-correlator device ~~(110)~~ connected with

a first cross-correlator input ~~(1101,1101I,1101Q)~~ to the first predistortion control input ~~(10)~~ and

a second cross-correlator input ~~(1102,1102I, 1102Q)~~ to the second predistortion control input ~~(11)~~, ~~which~~ wherein the cross-correlator device ~~(110)~~ further has a cross-correlator output ~~(1112)~~ ~~(1112)~~ at which a cross-correlation signal can be presented, the cross-correlation signal representing a measured cross-correlation (R m) of signals presented at the first cross-correlator input ~~(1101, 1101I, 1101Q)~~ and the second cross-correlator input ~~(1102,1102I, 1102Q)~~ ;

a predistortion function selector device ~~(120)~~, connected with

a selector input ~~(1210)~~ to the cross-correlator output ~~(1112)~~, and with

a selector output ~~(1211)~~ to the predistortion control output ~~(12)~~, said pre-distortion function selector device being arranged to compare the measured cross-correlation with a cross-correlation model stored in a memory ~~(122)~~ and determining on the basis of said comparison a suitable predistortion function and presenting a predistortion control signal at said

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selector output said predistortion control signal representing said ~~a~~ predistortion function.

2. (Currently Amended) The [[A]] predistortion control device ~~(1)~~ as claimed in claim 1, further including a quantiser device ~~(101)~~ connected with a quantiser input to the first predistortion control input, and with a quantiser output to the first cross-correlator input~~(1101, 1101I, 1101Q)~~.

3. (Currently Amended) The [[A]] predistortion control device ~~(1)~~ as claimed in claim 2, wherein the quantiser device ~~(101)~~ is a single-bit quantiser.

4. (Currently Amended) The [[A]] predistortion control device ~~(1)~~ as claimed in claim 2 ~~or 3~~, wherein the quantiser ~~(101)~~ is operable as a sub-sampling device.

5. (Currently Amended) The [[A]] predistortion control device ~~(1)~~ as claimed in claim 2 ~~any one of claims 2-4~~, wherein the cross-correlator device ~~(110)~~ includes a single-bit multiplier ~~(111)~~.

6. (Currently Amended) The [[A]] predistortion control device ~~(1)~~ as claimed in claim 2 ~~any one of claims 2-5~~, further including a distortion device ~~(102)~~ connected with a distortion input to the first predistortion control input, and connected with a distortion output to the quantiser input.

7. (Currently Amended) The [[A]] predistortion control device ~~(1)~~ as claimed in claim 6, wherein the distortion device includes a random distortion device.

8. (Currently Amended) The [[A]] predistortion control device ~~(1)~~ as claimed in claim 6 ~~or 7~~, wherein the distortion device includes a periodic distortion device.

9. (Currently Amended) The [[A]] predistortion control device ~~(1)~~ as claimed in claim 1 ~~any one of the preceding claims~~, wherein the second predistortion control input ~~(11)~~ is connectable to a signal output of a predistortion device.

10. (Currently Amended) The [[A]] predistortion control device ~~(1)~~ as claimed in claim 1 ~~any one of the preceding claims~~, further including:

an averaging device ~~(112)~~ capable of determining a time averaged cross-correlation value from a memory connected to the cross-correlator output ~~(1112)~~, for storing a number of cross-correlation values, ~~which~~ wherein the averaging device has an averaging output connected to the selector input, for presenting time averaged cross-correlation values to the predistortion function selector device ~~(120)~~.

11. (Currently Amended) ~~An assembly of a~~ The predistortion control device, as claimed in claim 1 ~~(1) as claimed in any one of claims1-10, and a predistortion device (3) having signal contacts (30,31)~~ further comprising: ~~including~~

a predistortion input ~~(30)~~ for receiving an original signal to be predistorted; ~~and~~

a predistortion output ~~(31)~~ for providing a predistorted output signal based on the original signal, and

a control input contact ~~(32)~~ connected to the predistortion control output ~~(12)~~ at which a predistortion control signal can be provided, in response to which predistortion control signal the predistortion device uses a predistortion function corresponding to the predistortion control signal to generate the predistorted output signal.

12. (Currently Amended) ~~An assembly~~ The predistortion control device as claimed in claim 11, further including a power amplifier ~~(2)~~ connected with:

an amplifier input ~~(20)~~ to the predistortion output ~~(31)~~, and

~~with~~ an amplifier output ~~(21)~~ to the first predistortion control input ~~(100.~~

13. (Canceled)

PN 13~~14~~. (Currently Amended) A predistortion control method, comprising the steps of: ~~including~~:

receiving a power amplifier output signal;

receiving a predistortion signal from a signal contact of a predistortion device:

determining a measured cross-correlation value by cross-correlating the power amplifier output signal and the predistortion signal;

comparing the measured cross-correlation value with a [[an]] cross-correlation model;

determining a suitable predistortion function from said comparing step ~~a suitable predistortion function~~, and

providing a predistortion control signal representing said predistortion function.

14 ~~15~~. (Previously Presented) The [[A]] predistortion control method, as claimed in claim ~~13~~ 13, further comprising:

minimising a difference between the measured cross-correlation value with a ~~an~~ model cross-correlation value, and

deriving from said minimizing step the predistortion function.

15 ~~16~~. (New) An arrangement for controlling predistortion in a power amplifier, the arrangement comprising:

a predistortion control device;

a first predistortion control input selectively connected to a power amplifier output;

a second predistortion control input selectively connected to a signal contact of a predistortion device; and

a predistortion control output selectively connected to a control contact of the predistortion device, the predistortion control device further including:

a cross-correlator device connected with

a first cross-correlator input to the first predistortion control input

and

a second cross-correlator input to the second predistortion control input, wherein the cross-correlator device further has a cross-correlator output at which a cross-correlation signal can be presented, the cross-correlation signal representing a measured cross-correlation (Rm) of signals presented at the first cross-correlator input and the second cross-correlator input;

a predistortion function selector device, connected with

a selector input to the cross-correlator output, and with

a selector output to the predistortion control output, said pre-distortion function selector device being arranged to compare the measured cross-correlation with a cross-correlation model stored in a memory and determining on the basis of said comparison a suitable predistortion function and presenting a predistortion control signal at said selector output said predistortion control signal representing said ~~a~~ predistortion function.

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16 ~~17~~. (New) The arrangement as claimed in claim 15 ~~16~~, further including a quantiser device connected with a quantiser input to the first predistortion control input. and with a quantiser output to the first cross-correlator input.

17 ~~18~~. (New) The arrangement as claimed in claim 15 ~~16~~, wherein the quantiser device is a single-bit quantiser.

18 ~~19~~. (New) The arrangement as claimed in claim 16 ~~17~~, wherein the quantiser is operable as a sub-sampling device.

19 ~~20~~. (New) The arrangement as claimed in claim 16 ~~17~~, wherein the cross-correlator device includes a single-bit multiplier.

20 ~~21~~. (New) The arrangement as claimed in claim 16 ~~17~~, further including a distortion device connected with a distortion input to the first predistortion control input, and connected with a distortion output to the quantiser input.

21 ~~22~~. (New) The arrangement as claimed in claim 20 ~~21~~, wherein the distortion device includes a random distortion device.

22 ~~23~~. (New) The arrangement as claimed in claim 20 ~~21~~, wherein the distortion device includes a periodic distortion device.

pN 23 ~~24~~. (New) The arrangement as claimed in claim 15 ~~16~~, wherein the second predistortion control input is connectable to a signal output of a predistortion device.

24 ~~25~~. (New) The arrangement as claimed in claim 15 ~~16~~, further including:

an averaging device capable of determining a time averaged cross-correlation value from a memory connected to the cross-correlator output, for storing a number of cross-correlation values, wherein the averaging device has an averaging output connected to the selector input, for presenting time averaged cross-correlation values to the predistortion function selector device.

25 ~~26~~. (New) The arrangement as claimed in claim 15 ~~16~~, further comprising:

a predistortion input for receiving an original signal to be predistorted;

a predistortion output for providing a predistorted output signal based on the original signal, and

a control input contact connected to the predistortion control output at which a predistortion control signal can be provided, in response to which predistortion control signal the predistortion device uses a predistortion function corresponding to the predistortion control signal to generate the predistorted output signal.

26 ~~27~~. (New) The arrangement as claimed in claim ~~26~~ 25, wherein the power amplifier is connected with:

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an amplifier input to the predistortion output, and

an amplifier output to the first predistortion control input.